

REMARKS

Claims 1-18 are currently pending, with claims 1 and 9 being in independent form. Claims 1 and 9 have been amended. No new matter has been added by way of this amendment. Reconsideration of the application, as amended, is respectfully requested.

Objection to the Drawings

The drawings have been objected to under 37 CFR §1.83(a). According to the Examiner, “the method of claim 1 and the device of claim 9 must be shown or the feature(s) canceled from the claim(s)”. With respect to this rejection, the method of claim 1 and the apparatus of claim 9 are described in the originally filed drawings.

For example, with reference to the method, the steps are shown with respect to the module blocks described in FIG. 1. In fact, each module is described in the drawing with respect to the step of the method that each module implements. Here, modules 1-10 are shown. In some instances, multiple modules are encircled by a dashed line to show steps of the claimed method that can be performed in unison, in accordance with the method disclosed in the specification of the instant application.

More particularly, step 1 implemented by module 1 is the “extracting” step, which is described in the 1st paragraph on pg. 11 of the specification as originally filed.

Step 2 implemented by the combination of modules 2 and 3 is the “determining at least three control points” step, which is described at pg. 3, last line and in the 2nd paragraph at pg. 11 of the specification as originally filed.

Step 3 implemented by module 3 is the “obtaining positions of the at least three control points” step, which is described at pg. 12, 1st paragraph of the specification.

Step 4 implemented by module 4 is the “calculating a resolution” step, which is described at pg. 12, 2nd paragraph of the specification.

Step 5 implemented by module 5 is the “projecting” step, which is described at pg. 12, last paragraph, bridging pg. 13 of the specification.

Step 6 implemented by module 6 is the “determining gray-scale values” step, which is described at pg. 4, paragraph bridging pgs. 4 and 5 and at pg. 13, 1st full paragraph of the specification.

Step 7 implemented by module 7 is the “forming differences of gray-scale values” step, which is described at pg. 14, 2nd paragraph of the specification.

Step 8 implemented by module 8 is the “comparing said differences” step, which is described at pg. 14, 3rd paragraph of the specification.

Step 9 implemented in modules 9 and 10 is the “shifting, assign and selecting” steps, which are described at pg. 6, lines 13-15 and lines 17-18 and at pg. 15, 1st paragraph of the specification.

The apparatus of claim 9 is described, for example, at pg. 9, 4th full paragraph, which states that the “device according to the invention comprises individual modules. The individual modules can be integrated into either a common computing unit, and/or a computer cluster”. These individual modules are depicted in Fig. 1 by modules 1-10.

At pg. 10, 7th full paragraph, the specification further describes that “[o]n the basis of the rough correspondence, a roughly adjusted virtual map is produced in module 5”. This module is illustrated in FIG. 1 by module 5.

With reference to FIG. 1, the specification describes that “in modules 6-8, the adjustment of the virtual map is refined” (see pg. 10). Lastly, the specification states that “the result obtained from modules 6-8 is a final mapping function with a correction table”, where “gray-scale percentage values are assigned to surfaces (pixels) in steps 9 and 10” (see pg. 10; FIG. 1).

In view of the foregoing, the method and apparatus of claims 1 and 9 are supported by the drawings, since the method and apparatus are described in the specification as modules 1 thru 10 and these modules, which implement the claimed method of the invention, are shown in sequence in FIG. 1. Therefore, withdrawal of the objection to the drawings is in order.

Objection to the Specification

The specification has been objected to as failing to provide antecedent basis for the claimed subject matter. According to the Examiner, the elements of claims 1 and 9 are not found in the detailed description of the specification.

With respect to the foregoing, MPEP §2163.02 states:

The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. An objective standard for determining compliance with the written description requirement is, “does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.” *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

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The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. (Emphasis Added)

The Examiner (pg. 5 of the Office Action) asserts that “the elements added to claims 1 and 9 are generally similar to page 6 of the application, however, the differences are enough to be new matter”. It is clear applicants have used language that is not literally the same as that described at pg. 6 of the specification. However, the basic concepts recited in the claims are described at pg. 6 of the specification such that persons of ordinary skill in the art are allowed to recognize the invention as claimed. Withdrawal of the objection to the specification is therefore respectfully requested.

Rejection of the Claims under 35 U.S.C. §112, First Paragraph

Claims 1-18 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

The Examiner (pg. 4 of the Office Action) asserts that support for the amendments to claims 1 and 9 is not found at pgs. 6 and 13 of the specification as originally filed. Applicant do not agree.

Applicants originally stated in the Response filed April 23, 2007 that support “may be found, **for example**, at pg. 6 and 13 of the specification as originally filed”. Consequently, this did not mean that the only place in the specification where support could be found was pgs 6 and 13 of specification. The specification provides a written description of the recitations of claims 1 and 9.

The Examiner (pg. 4 of the Office Action) states that the “comparison described in the specification is performed for the purpose of obtaining more precise positions of the control points, rather than after and independently of obtaining the positions of the control points as recited in claim 1”. However, the specification clearly describes that “some of the steps of the process can be processed in parallel (see pg. 9, 4th full paragraph). Therefore, the claimed invention is not temporally limited in the manner asserted by the Examiner.

The Examiner questions whether “a mapping function” is located in the specification as originally filed. However, the mapping function is described throughout the specification. For example, the specification (at the bottom of pg. 3 thru pg. 4) describes that:

“[t]he parameters of the *mapping function* are adjusted and/or a suitable known *mapping function* is determined on the basis of the control points and the corresponding points in the reference image.... *Mapping functions* with fixed parameter sets are filed, for example, in a database. An adjustment of this type is of interest when many mapping process of the same type are present. So that suitable objects can be chosen, it is advantageous for the objects to have conspicuous and unique forms, so that gross errors can be excluded. The reference image can be mapped in a known map *projection*, or it can have an unknown mapping base. If the mapping base is known, the *mapping function* is taken from the mapping model. If the mapping base of the reference image is unknown, the mapping function will be an affine transformation. By adjusting the parameters to obtain the minimum cumulative error, the *mapping function* can be adjusted without precise knowledge of the mapping model and/or, if the mapping base is absent, without a mapping model at all. (Emphasis Added)

It is clear the foregoing section of the specification describes a mapping function and also provides a description with respect to a “projection”. Therefore, the projection step of claim 1 is supported by the written description.

The Examiner further assert that the “support for the claim language of ‘determining gray-scale values of respect pixels... in a corresponding control point structure of the reference image’ is not clearly apparent on page 6 of the application”.

As described at pg. 6 of the originally filed specification, the gray-scale values of the individual pixels in the control point structure or image structure are determined, and the difference between the corresponding adjacent pixels are found. These differences are compared with the differences between the corresponding pixels in the other structure, from which an error value is derived”. As further described at pg. 5 of the specification, “in an analysis of the gray-scale differences on a channel, either the contrast found in the image alone or preferably the contrast found in both the image and the associated reference image can enter into the quality index.... The degree of similarity is found by comparing the form of the gray-scale curve in the X and Y directions within the control point structures of the gray-scale image with the form found for the reference image”. Therefore, the foregoing language provides support for the recitations of independent claim 1.

The Examiner (pg. 6) asserts that the limitations “deriving an error value by comparing differences, shifting the control point structure, and then determining the same error value” and that “determining the error value in a manner identical to the manner in which the new position of the control point structure is obtained” as recited in claim 1 “contradicts the discussion about deriving error values on page 6 of the application”. Applicants have amended claim 1 to recite “said error value being determined by comparing said differences in the corresponding new control point structures between adjacent pixels in the new control point structure of the image with said differences of gray-scale values of adjacent pixels of the corresponding new control

point structure of the reference image”. Independent claim 9 has been correspondingly amended. Claims 1 and 9 as now amended are accordingly supported by the written description.

Withdrawal of this rejection is therefore respectfully requested.

Rejection of the Claims under 35 U.S.C. §112, Second Paragraph

Claims 1-18 stand rejected under 35 U.S.C. §112, second paragraph as indefinite for failure to particularly point out and claim the subject matter which applicant regards as the invention. In response to this rejection, except as otherwise mentioned below, Applicants have amended claims 1 and 9 in a manner that is believed to resolve each rejection in a self-explanatory manner.

With respect to the transition from the term “control point” to “control point structures”, reference by the Examiner at pg. 7 of the Office Action, the specification describes that “[T]he size of the control point structures is a compromise between the ideal, dimensionless control ‘point’ and an image structure which can be recognized again” (see pg. 13, 3rd paragraph of the specification as originally filed). As further described at pg. 6, the gray-scale values of the individual pixels in the control point structure or image structure are determined, and the difference between the corresponding adjacent pixels are found. These differences are compared with the differences between the corresponding pixels in the other structure, from which an error value is derived”. Thus, control points structures have a size or dimension (see pg. 4, $N*N$ pixels, where N is any desired natural number) and control point is dimensionless. Therefore, the claims are clear in view of what is described in the specification.

Regarding the selecting step referenced by the Examiner at pg. 9 of the Office Action, this step has been modified to indicate that the selection is performed “based on the error values”, which are recited in the claim. Withdrawal of the rejections under 35 U.S.C. §112, second paragraph are therefore requested.

In view of the patentability of independent claims 1 and 9 for the reasons set forth above, dependent claims 2-8 and 10-20 are all patentable over the prior art.

Based on the foregoing amendments and remarks, this application is in condition for allowance. Early passage of this case to issue is respectfully requested.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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